

June 10, 2003

TO: Internal File

THRU: Joe Helfrich, Team Lead

FROM: Priscilla Burton, Environmental Scientist III, Soils

RE: Reformat and Digitization, CO-OP Mining Company, Bear Canyon Mine, C/015/025-AM03A

**SUMMARY:**

The Permittee submitted an electronic copy on December 3, 2002 and hard copy of the reformatted Mining and Reclamation Plan (MRP) on February 12, 2003. Both the electronic and hard copies have been filed with the Public Information Center. The reformatted MRP can also be accessed at the following location:

M:\FILES\COAL\PERMITS\015\C0150025\2002\INCOMING\PLAN\12032002

To be more useful, the reformatted MRP needs some corrections, as outlined in this memo.

Soils information previously located in Chapter 8 and Appendices is now found in Chapter 2 and Appendices, consequently all the maps and table numbers begin with 2. i.e. Plates 2-1A rather than 8-1 is the Main Area Soils Map. Cross-reference charts are key to the understanding of previous technical memos on the Bear Canyon Mining and Reclamation Plan. **The Division should attach cross-reference charts to previous Technical Analysis for the Bear Canyon Mine on file in the Public Information Center.**

Changes to the operations and reclamation plan in this submittal were commented upon.

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**TECHNICAL ANALYSIS:**

**GENERAL CONTENTS**

**PERMIT APPLICATION FORMAT AND CONTENTS**

Regulatory Reference: 30 CFR 777.11; R645-301-120.

**Analysis:**

After viewing quick links to appendices and other connections within the document, the viewer must use the document button on the tool bar to return to the main document.

Soils information previously located in Chapter 8 and Appendices is now found in Chapter 2 and Appendices, consequently all the maps and table numbers begin with 2. An .xls file accompanying the submittal provides a quick check to the changes made in Plate and Appendix titles. The Division has created the cross-references for the narrative sections and table for use when reading the previous technical reviews.

The .xls file included with the Public information Center copy of the submittal provides a cross reference for new and old plate numbers and new plate titles. It is reprinted below with map titles added by the Division. New listings are in bold. This .xls file is not found on the other electronic copies of the submittal or in the hard copy.

Plate 2-1A	Formerly 8-1	Soils Map (Main Area)
Plate 2-1B	Formerly 8-1A	Soils Map (WHR Area)
Plate 2-2A	Formerly 8-2	Main Topsoil Stockpile Area
Plate 2-2B	Formerly 8.7	WHR Topsoil Stockpile Area
<b>Plate 2-2C</b>	<b>Created for WHR Tank Seam</b>	<b>WHR Tank Seam Topsoil</b>
<b>Plate 2-2D</b>	<b>Created for Mohrland</b>	<b>Mohrland Topsoil Stockpile Area</b>
Plate 2-2E	Formerly 8-6	Tank Seam Road Topsoil Stockpile
Plate 2-2F	Formerly 8.4	Ballpark Topsoil Pile Area
Plate 2-3A	Formerly 8-5A	Reclamation Area (TS 1 & 2 Ballpark Area)
Plate 2-3B	Formerly 8-5B	Reclamation Area (TS 2, 3, 4, & 9, Shower House Area)
Plate 2-3C	Formerly 8-5C	Reclamation Area (TS 5-8, Load-out Area)
Plate 2-3D	Formerly 8-5D	Reclamation Area (TS 6, Mine Access Road Area)
Plate 2-3E	Formerly 8-5E	Reclamation Area (TS 10 & 11, Tank Seam Portal Area)
Plate 2-3F	Formerly 8-5F	Reclamation Area (TS 12 & 13, WHR Access Road Area)

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Plate 2-3G	Formerly 8-5G	Reclamation Area (TS 12, 14, 15, 16, & 17, WHR Portal Area)
Plates 5-2 series	Formerly 2-4 series	Surface Facilities Blind Canyon

Plates in Chapter 2 (Soils) of the document are exactly the same as the existing MRP with one exception, Plates 2-2C (WHR Tank Seam Topsoil Stockpile Area) and 2-2D (Mohrland Topsoil Stockpile Area) are new listings and neither could be accessed. Apparently they have not been created yet.

Plate 2-2F Ballpark Topsoil Pile Area has been retained in the new format, however the Division approved the removal of the Ballpark from the disturbed area in 2001. In fact, Table 2-5, Topsoil Summary, does not include the Ball Park soils for use as substitute topsoil during final reclamation. Therefore inclusion of this Plate is confusing to the reader.

The .xls file included with the submittal provides new appendix numbers. For information pertinent to soils of the site, a cross-reference is reprinted the table below. There are no new listings of appendices for soils information.

Appendix 2-A	Formerly 8A	Soil Test Reports
Appendix 2-B	Formerly 8C	Prime Farm Lands
Appendix 2-C	Formerly 8D	Substitute Topsoil Material (Downcast)
Appendix 2-D	Formerly 8E	In-Place Plant Growth Material
Appendix 2-E	Formerly 8B	SCS Soil Survey
Appendix 2-F	Formerly 8F	WHR Soil Resource Inventory and Assessment WHR Tank Seam Soil Resource Inventory and Assessment
Appendix 2-G	Formerly 8G	
Appendix 5-I	Formerly 3-L	Cut & Fill calculations (for areas TS3-9)
Appendix 5-K	Formerly 3-P	WHR Tank Seam Pad and Access Road
Appendix 5O	Formerly 3-K	Sediment Pond Material
Appendix 7K	Formerly 7K	Alternate Sediment Control Areas (includes topsoil piles)
Appendix 5D	Formerly 3-E	Toxic Materials & Handling

Appendices 2-F & 2-G could not be accessed in the electronic format.

The .xls file included with the submittal did not itemize changes to the tables. Tables in Chapter 2 (Soils) of the document are exactly the same as the existing MRP with one exception, the Analytical Parameters For Baseline Soil Data Table 8.8-1 has been replaced with two tables (Table 2-4a and 2-4b) that were taken from the January 2003 DRAFT Division Soils Guidelines for Management of Topsoil and Overburden. Table 8.9.1 did not get its heading changed to Table 2-7 as referenced in the reformatted MRP. Below is a cross-reference of the current and previous table numbers and new table titles in Chapter 2 of the document:

Table 2-1	Formerly 8.3-1	Soil Map Units
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Table 2-2	Formerly 8.3-2	Soil Unit Acreage Within the Disturbed Area
Table 2-3	Formerly 8.9-2	Available Substitute Topsoil Material
Table 2-4a	<b>Replaced</b> 8.8-1	Analytical Methods for Baseline Soils Data
Table 2-4b	<b>Replaced</b> 8.8-1	Additional Analyses Required for Substitute Topsoil, Overburden, Spoil and Coal Mine Waste
Table 2-5	Formerly 8.9-5	Topsoil Summary Table
Table 2-6	Formerly 8.9-4	Ball Park Seed List
Table 2-7	Formerly 8.9-1	Reclamation Area Summary
Table 2-8	Formerly 8.9-3	Substitute Topsoil Summary
Table 2-9	Formerly 8.11-1	Final Grading Test Sample Density
Table 5K-1	Formerly Table 3P-1	WHR Tank Seam Topsoil Recovery
Table 5O-1	Formerly Table 3K-1	Analytical Parameters for Overburden (in Appendix 5O)

Figures 2-1 and 2-2 in Chapter 2 are the same as Figures 8.9-1 (Photographs of the Ball Park Area) and 8.9-2 (Ball Park Topsoil Storage Pile) in the approved MRP.

The .xls file included with the submittal did not cross reference changes to the narrative. Below is a cross-reference of the current and previous narrative sections pertaining to the soils resource information, topsoil and subsoil operations plan, soils redistribution plan, and stabilization plans.

Section R645-301-221	Formerly 8-6	Prime Farm Lands
Section R645-301-222	Formerly 8-1 & 8-2	Soil Survey
Section R645-301-222.100	Formerly 8-1	Soil Maps
Section R645-301-222.200	Formerly 8-3	Soil Identification
Section R645-301-222.300	Formerly 8-3	Soil description
Section R645-301-222.400	No previous reference	Soil Productivity
Section R645-301-223	Formerly 8-7 and 8.7-1	Soil Characterization
Section R645-301-224	Formerly 8.9-1	Substitute Topsoil
Section R645-301-230	Formerly 8.8.1.1	Operation Plan
Section R645-301-231	Formerly 8.8.1.1	General Requirements
Section R645-301-231.100	Formerly 8.8.1.1 and 8.8.1.2 & 8.9.7	Topsoil Removing and Storing
Section R645-301-231.300	Formerly 8.11	Soil Testing Plan
	Formerly 8.9, 8.9.2 through 8.9.6	
Section R645-301-231.400	No previous reference	Construction, Modification and Maintenance
Section R645-301-232	No previous reference	Topsoil and Subsoil Removal
Section R645-301-232.100	Formerly 3.5.4.2	Topsoil Removal Prior to Disturbance
Section R645-301-232.200	No previous reference	Insufficient Topsoil
Section R645-301-232.300	No previous reference	Topsoil Material Less Than 6" Thick
Section R645-301-232.400	No previous reference	Area where topsoil will not be recovered
Section R645-301-232.500	No previous reference	Subsoil Segregation
Section R645-301-232.600	No previous reference	Timings
Section R645-301-233	Formerly 8.9	Topsoil Substitutes and Supplements

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Section R645-301-234	Formerly 8.8.1.3	Topsoil Storage
Section R645-301-240	Formerly 8.9.1	Reclamation Plan
Section R645-301-241	No previous reference	General Requirements
Section R645-301-242	Formerly 8.10	Soil Redistribution
Section R645-301-243	Formerly 8.11	Soil Nutrients and Amendments
Section R645-301-244	Formerly 8.5	Soil Stabilization
Section R645-301-250	Formerly 8.4	Performance Standards

Cross-reference charts are key to the understanding of previous technical memos on the Bear Canyon Mining and Reclamation Plan. **The Division should attach these cross-reference charts to previous Technical Analysis for the Bear Canyon Mine on file in the Public Information Center.**

### Findings:

The information provided does not meet the minimum general contents requirements of the Regulations. Prior to approval, the Permittee must provide the following, in accordance with:

**R645-301-121.200, (1)** Remove Plate 2-2F Ballpark Topsoil Pile Area **(2)** Provide electronic access to appendices 2-F & 2-G **(3)** In Section R645-301-240, page 2-34, the heading for Table 8.9.1 should be changed to Table 2-7 as referenced in the reformatted MRP.

## ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

### Analysis:

Both the electronic and hard copies of the reformatted Mining and Reclamation Plan have been filed with the Public Information Center. (However, the PIC copy of the CD was not readable by my computer.) The reformatted MRP can also be accessed at the following location: M:\FILES\COAL\PERMITS\015\C0150025\2002\INCOMING\PLAN\12032002

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For the most part, soils information has not changed since the last submittal two major soil amendments were received AM01A in 2001 and AM03B in 2003. This new submittal indicates that soil productivity information is found in Appendices 2-C through 2-F. The Division found productivity information in Appendix 2-E, SCS Soil Survey and Appendix 3-B Miscellaneous Vegetation Information.

**Findings:**

The information provided does not meet the minimum soils resource information requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-222.400,** The Permittee should reference Appendix 2-E and 3-B as the location of the soils productivity information.

**PRIME FARMLAND**

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

**Analysis:**

There has been no change to the information provided previously.

**Findings:**

The Division concurs with the Natural Resources Conservation Service that there are no prime farmlands within the disturbed area.

**OPERATION PLAN**

**TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

**Analysis:**

**Topsoil Removal and Storage**

Information in the reformatted submittal is the same as the approved plan except where noted below.

Table 2-5 Topsoil Summary is the equivalent of Table 8.9.7 in the currently approved MRP. Table 2-5 itemizes the shower house pad topsoil pile as holding 1,200 cu yds of soil. However the narrative indicates that this soil was transferred to the Wild Horse Ridge topsoil pile. There is no map of the shower house topsoil pile. The Division recommends that Table 2-5 is amended to show an increase in the Wild Horse Ridge Topsoil by 1,400 cu yds and the reference to the shower house pad topsoil stockpile be deleted from Table 2-5.

Section R645-301-231.400 Construction, Modification and Maintenance does not contain the most recent information for the WHR Tank seam topsoil stockpile as received by the Division on July 3, 2001 under Section 8.9-5, page 8-34. Please amend the electronic and reformatted copy accordingly.

Section R645-301-232.400 is new to the MRP and contains the statement "Topsoil may not be recovered in the case of small structures such as power poles, signs, or fence lines or where the disturbance will destroy the existing vegetation or cause erosion." The Permittee should be reminded R645-301-232.400 clearly indicates that the Division will determine whether topsoil will not be removed at the site of small structures. Thus, the statement in the MRP pre-empts the Division's decision-making ability and should be removed. A similar problem is found with the statement listed under R645-301-232.500 Subsoil Segregation.

Table 2-7 (Formerly Table 8.9-1) indicates that there area 28.03 "New acres" of disturbance. That figure is changed from the approved plan, which indicates 27.90 acres of disturbance. The change is in the TS-16, WHR TS Lower Portal Access Road which was formerly listed as 0.76 acres. The narrative in Section R645-301-242 under RS-16 has also been modified from the approved MRP to indicate that the lower portal access road would be widened in two locations as shown on Plate 2-3G and in Appendix 5-K. The narrative indicates that 124 cu yds of topsoil was stockpiled from this location.

### **Findings:**

The information provided does not meet the minimum Operations Topsoil/Subsoil requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-231.100,** Amend Table 2-5 to show an increase in the Wild Horse Ridge Topsoil by 1,400 cu yds and remove the reference to the shower house pad topsoil stockpile from Table 2-5 and from the narrative in Section R645-301-231.400.

**R645-301-231.400,** Include the latest information for the WHR Tank Seam topsoil stockpile as received by the Division on July 3, 2001 (see section 8.9.5, page 8-34 of the approved plan as compared with page 2-27 of the reformatted plan).

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**R645-301-232.400**, The Permittee is reminded that the Division will determine whether topsoil will not be removed at the site of small structures. Thus, the statement in the MRP pre-empts the Division's decision-making ability and should be removed.

**R645-301-232.500**, The Permittee is reminded that the Division will determine whether subsoil will be segregated. Thus, the statement in the MRP pre-empts the Division's decision-making ability and should be removed.

## SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

### Analysis:

#### Coal Mine Waste

Coal fines will be removed from the surface of the reclaimed site with water hoses or by vacuuming until only 50% of the surface is coal fines (Section 542.200, page 5-40). This statement varies from the currently approved plan in Section 3.6.4.5 (page 3-77) where the Permittee indicates that coal fines will be removed from the surface by the use of vacuums and/or water, but an acceptable percentage of coal fines remaining is not discussed. The Division's DRAFT guidelines allow up to 10% coal fines in a pre-law area.

Sediment pond clean out is described in Appendix 5O. A maximum of 150 cu yd of coal mine waste will be temporarily stored on the main storage pad shown on Plate 5-2C. Waste rock from the Wild Horse Ridge will be hauled to Hiawatha slurry pond 5A. Prior to being hauled it will be tested according to Table 5O-1 of Appendix 5O.

In Mine roof samples are in Appendix 6-C for samples taken through 1995. There are more recent samples that should be added to this Appendix.

Section 528.320, page 5-25 indicates that "Tests have shown that the roof rock is not acid or toxic forming." This statement is not accurate according to the recent samples reviewed in 2002 by the Division. The samples taken from RM1 in September 2002 were very low in pH and very high in Boron.



### **Findings:**

The information provided does not meet the minimum Operation Spoil and Waste Materials requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-542.200**, The statement on page 5-40 that coal fines will be removed from the surface of the reclaimed site with water hoses or by vacuuming until only 50% of the surface is coal fines should be reworded to indicate that coal fines and fragments will cover 10% or less of the surface on a pre-law site and will be completely covered on a post-law site (disturbed after August 1977).

**R645-301-624.320 and -624.330**, Roof, floor and coal analyses are found in Appendix 6-C for samples taken through 1995. This Appendix should be updated with recent sampling through 2002.

**R645-301-528.320**, Section 528.320, page 5-25 indicates that "Tests have shown that the roof rock is not acid or toxic forming." According to the recent samples reviewed in 2002 by the Division, this statement is no longer accurate and should be removed from the plan.

## **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### **Analysis:**

#### **Acid- and Toxic-Forming Materials and Underground Development Waste**

Section 542.200, page 5-39, refers the reader to Appendix 5D and Appendix 6C for acid toxic information. Appendix 5D Toxic Materials & Handling provides limited information on the characteristics of soil, coal and sediment pond sludge through 1989. Appendix 6C Coal & Rock Characteristics has samples of roof and floor through 1995. Both Appendices should be updated to include all the sampling conducted through 2002.

### **Findings:**

The information provided does not meet the minimum Operation Hydrologic Information requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

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**R645-301-731.311**, Appendices 6C and 5D should be updated to include all the sampling conducted of sediment pond sludge and in-mine roof, floor and coal analyses through 2002.

## RECLAMATION PLAN

### TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

#### Analysis:

##### Redistribution

Appendix 4D of Chapter 4 is incorrectly named In-Place Plant Growth Material. It contains Air Quality information.

Page 2-41 of Section R645-301-242 page 2-41 incorrectly refers the reader to Plate 2-2F Ballpark Topsoil Pile Area Map for the location of the topsoil salvaged from TS-13.

There are no changes to the previously approved reclamation plan, except that Section R645-301-341, page 3-41 indicates that fertilizers will be applied with the wood fiber mulch slurry. This practice was not described in the approved MRP and the Division does not recommend this approach as the fertilizer will come in contact with the seed rather than the plant roots. Fertilizer should be incorporated into the surface with gouging of the soil.

#### Findings:

The information provided is not adequate for the purposes of Topsoil/Subsoil Reclamation Plan requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-240**, (1) Appendix 4D of Chapter 4 is incorrectly named In-Place Plant Growth Material, but it contains Air Quality information. (2) Page 2-41 of Section R645-301-242 page 2-41 incorrectly refers the reader to Plate 2-2F Ballpark Topsoil Pile Area Map for the location of the topsoil salvaged from TS-13.

**R645-301-243**, Section R645-301-341, page 3-41 indicates that fertilizers will be applied with the wood fiber mulch slurry. The Division does not recommend this

practice. Fertilizer should be incorporated into the surface with gouging of the topsoil.

## STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

### Analysis:

There has been no change to the information presented for stabilization of surface areas.

Gouging to an 8 inch depth on the pad areas is referred to in Section 542.200 page 5-41. Tank seam gouging to a depth of 8 – 12 inches is described on page 5-44. Section 542.200 page 5-47 refers the reader to Appendix 7-K for information on deep gouging during Wild Horse Ridge reclamation. This reference may be inaccurate, as Appendix 7-K refers to the use of gouging only as part of the alternate sediment control during reclamation of BTCA “Z,” the ASCA for WHR topsoil stockpile area and conveyor access road slopes (pg 7K-31). Please check this reference. Also the narrative in Appendix 7K is repeated again in the Figures section and the Vegetation Monitoring information is presented twice in this Appendix as well.

The Permittee should investigate the use of deep gouging 18 - 24 inches on the reclaim site. Deep gouging has been used successfully on reclamation sites through out Utah and has been described in The Practical Guide to Reclamation in Utah, page 66. This publication is available on the web at <http://www.dogm.nr.utah.gov>

Mulching is described in Section R645-301-341 page 3-41 as well as on pages 5-44 and 5-48 of Section 542.200. The Permittee intends to use excelsior blanket on slopes of 2h: 1v.

Section 542.200, page 5-44 indicates that rocks will be embedded into the upper surface as described on page 5H-27 (in a May 10, 1994 letter from Dames and Moore). As stated on page 5-44, the goal will be to obtain a minimum cover of 32% rock, similar to the reference area. Wind protection through the use of boulders is also described in R645-301-412.110 Method for Achieving Post-Mining Land Use.

### Findings:

The information provided does not meet the minimum requirements of the Regulations to provide stabilized surface areas.

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**R645-301-542.200,** In Section 542.200 page 5-47 a reference is made to Appendix 7-K for information on deep gouging during Wild Horse Ridge reclamation. This reference may be inaccurate, as Appendix 7-K refers to the use of gouging only as part of the alternate sediment control during reclamation of BTCA "Z," the ASCA for WHR topsoil stockpile area and conveyor access road slopes (pg 7K-31). Please check this reference. Also the narrative in Appendix 7K is repeated again in the Figures section and the Vegetation Monitoring information is presented twice in this Appendix as well.

**R645-301-244,** The Permittee should investigate the use of deep gouging (18 - 24 inches) over the reclaim site, rather than the 8 – 12 inch gouges described in Section 542.200.

**RECOMMENDATIONS:**

Cross-reference charts created by the Division under Permit Application Format and Contents are key to the understanding of previous technical memos on the Bear Canyon Mining and Reclamation Plan. Cross-references should be included with previous copies of the Technical Analysis of the Bear Canyon Mining and Reclamation Plan on file in the Public Information Center.

The reformatted plan should not be accepted as the official copy until the items identified in this memo have been corrected.